

Name: Key (Honor Code)

Date: \_\_\_\_\_ Bell: \_\_\_\_\_

Unit 3 Study Guide

Math 7

1. Sam found a new calculator on sale for 15% off. It's regularly priced at \$36.00. What is the sale price?

$$\begin{array}{r} 36 \\ \times 0.15 \\ \hline 5.40 \\ 36.00 \\ + 5.40 \\ \hline 31.60 \end{array}$$

2. A length of 6 inches equals about 15 centimeters. Write a proportion to find the number of centimeters in 18 inches. (Don't solve your proportion.)

$$\frac{6}{x} = \frac{15}{18}$$

model	actual
6	15
x	18

3. Lawrence leaves a customary 15% tip for a meal which costs \$56. What is the cost of the tip?

$$\begin{array}{r} 56 \\ \times 0.15 \\ \hline 8.40 \end{array}$$

4. Walter is driving to Washington D.C. He has traveled 90 miles in 1.5 hours. At this rate, how long will it take Walter to make the 190-mile trip?

miles	hours
90	1.5
190	x

$$x = 3.17 \text{ hours}$$

5. Norell works 7 hours and earns \$37.10. How many hours did she work if she earned \$201.40?

hours	\$
7	37.10
x	201.40

$$x = 38 \text{ hours}$$

6. Peaches are priced at 5 for \$3.00. Find the unit price.

$$\frac{\$3.00}{5} = \$0.60$$

7. Three friends split dinner at a restaurant. The cost of their meal is \$46.20. Their service was so good they decide to tip their waitress 20%. If the three friends split the cost of their meal equally (including the tip), how much does each friend pay?

$$\begin{array}{r} 46.20 \\ \times 0.20 \\ \hline 9.24 \end{array}$$

$$\begin{array}{r} 46.20 \\ + 9.24 \\ \hline 55.44 \end{array}$$

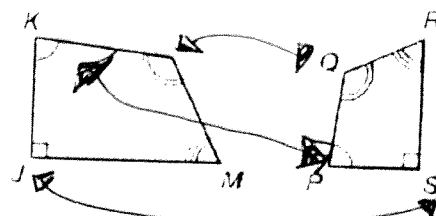
$$\begin{array}{r} 55.44 \\ \div 3 \\ \hline \$18.48 \end{array}$$

each

8. Samantha determines that 4 liters is about 4.22 quarts. She needs to determine how many quarts (q) are equivalent to 10 liters. Find the value of q.

quarts	liters
4.22	4
q	10

9. The two quadrilaterals below are similar.



Complete the statement below.

$$LKJM \sim PQSR$$

10. Mr. Hardin needs to take a loan out to buy a new car. He plans to borrow \$30,000 from the bank which charges 7.5% simple interest. How much money will he pay in interest after 2 years?

11. Mitch typed 350 words in 5 minutes. Which of the following proportions could **NOT** be used to determine how long it would take him to type 140 words?

A.  $\frac{140}{350} = \frac{x}{5}$

C.  $\frac{140}{350} = \frac{5}{x}$

B.  $\frac{140}{x} = \frac{350}{5}$

D.  $\frac{x}{140} = \frac{5}{350}$

words	minutes
350	5
140	x

$$\frac{\text{model}}{\text{actual}} = \frac{1}{4} = \frac{20}{x}$$

12. Mrs. Hallock used a scale of 1 inch = 20 feet to construct a scale model of the school gymnasium. A basketball hoop in the model has a height of 4 inches. What is the actual height of the basketball hoop?

80 feet

13. Suppose a model of a tugboat is 10.8 inches long. The actual length of the boat is 162 feet long. What is the scale of the model? (Don't forget to reduce.)

$$\frac{\text{model}}{\text{actual}} = \frac{10.8}{162} = \frac{1}{15}$$

A. 1 in = 20 ft

C. 10 in = 20 ft

B. 1 in = 15 ft

D. 1 in = 16 ft

14. A map has a scale of  $\frac{3}{4}$  inch = 400 miles. How many inches on the map would represent 900 miles?

$$\frac{\text{map}}{\text{actual}} = \frac{3/4}{400} = \frac{x}{900} \Rightarrow x = 1.69 \text{ in}$$

15. Mr. Noss bought a computer for \$528.00. How much tax would be added to the price if the tax rate in Virginia is 6.5%?

16. Mr. Brewer's commission rate is 4%. How much will he receive on a sale of \$14,525?

17. Ms. Hinton is buying a sweater that is \$90.00. It is on sale for 60% off. The sales tax is 5%. What is the final cost of the sweater after the discount and tax?

$$\begin{array}{r} 90 \\ \times .60 \\ \hline 54 \\ 90 \\ \times .05 \\ \hline 4.50 \\ \hline 37.80 \end{array}$$

18. What is the percent decrease on a car that was purchased in 2008 for \$9000 but sold two years later in 2010 for \$7500. (Round your answer to the nearest whole percent.)

$$\frac{15}{90} = \frac{x}{100} \Rightarrow x = 16.6\%$$

19. What is 40% of 120?

$$\frac{x}{120} = \frac{40}{100} \Rightarrow x = 48$$

20. 30 is 8% of what number?

$$\frac{30}{x} = \frac{8}{100} \Rightarrow x = 375$$

21. 12 is what percent of 60?

$$\frac{12}{60} = \frac{x}{100} \Rightarrow x = 20\%$$

22. On a road map,  $\frac{1}{4}$  inch represents 30 miles. How many miles does  $2\frac{3}{4}$  inches represent?

$$\frac{\text{map}}{\text{actual}} = \frac{1/4}{30} = \frac{2.75}{x} \Rightarrow x = 330 \text{ miles}$$

23. Sally is planning breakfast for a family event. She wants to serve Belgian Waffles. She found this recipe which serves 6 people.

Deltan Waffles	
$1\frac{3}{4}$ cups flour	$\frac{1}{2}$ cup shortening, melted
$1\frac{1}{4}$ cups milk	1 tablespoons baking powder
$\frac{1}{2}$ teaspoon salt	2 eggs

A. How much salt does she need if she uses 5 eggs?

$$\frac{\text{salt}}{\text{eggs}} = \frac{1/2}{2} = \frac{x}{5} \Rightarrow x = 1.25 \text{ tsp. salt}$$

B. How much baking powder does she need if she wants to serve 15 people?

$$\frac{\text{Bkg. P.}}{\text{People}} = \frac{1}{6} = \frac{x}{15} \Rightarrow x = 2.5 \text{ Tbsp. baking powder}$$

24. Circle each pair of ratios below that form a proportion. Hint: how do you know if 2 things are proportional?

A.  $\frac{5}{8} = \frac{20}{32}$   
 $160 = 160$

C.  $\frac{12}{28} = \frac{37}{63}$   
 $756 = 756$

B.  $\frac{40}{48} = \frac{56}{42}$   
 $1680 = 2688$

D.  $\frac{6.4}{16} = \frac{32}{80}$   
 $512 = 512$

25. A tree casts a shadow that is 55 ft. long. If a 5 ft. tall woman casts a shadow that is 11 ft. long at the same time of day, how tall is the tree?

$$\frac{\text{Big}}{\text{Little}} = \frac{55}{11} = \frac{x}{5} \Rightarrow x = 25 \text{ ft. tall}$$

\* Be sure to review your past tests/warmups